

Therapy of Primary Breast Cancer

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■ *Most breast cancers are multicentric in origin. They drain into two primary lymphatic depots—the axilla and internal mammary chain of nodes. The incidence of metastasis to the internal mammary nodes rises as the location of the primary tumor approaches to the sternal margin of the breast.*

One hundred and thirty-seven patients primarily with in situ and non-infiltrating intraductal carcinoma were treated adequately by simple mastectomy and axillary dissection with preservation of the pectoral muscles.

All have remained free of disease. Infiltrating cancers arising in the lateral portion of the breast are best treated by radical mastectomy since they spread mainly to the axillary nodes. Medial and central infiltrating cancers have been treated by radical mastectomy with internal mammary resection, since they show a higher incidence of internal mammary metastasis. Seventy-two percent of 500 patients treated in this fashion survived at five years and 65 percent were clinically free of disease. A five-year salvage rate of 60 percent and a ten-year salvage rate of 50 percent were obtained in patients with only internal mammary node metastasis or in those with only axillary involvement. When both nodal areas were involved 43 percent remained free of disease at five years and 20 percent at ten years.

Mammography and biopsy of the contralateral breast at the time of radical mastectomy contributed to the detection of early localized breast cancer.

CURRENT SURGICAL TREATMENT for primary breast cancer began in the 1890s with the introduction by Halstead and Willy Meyer of the now classical radical mastectomy. Until fairly recently this was considered to be the optimum procedure

for operable breast cancer. During the last two decades however, various modifications of the classical procedure have been introduced.

Of necessity, the primary curative attack on breast cancer continues to be a local one—a combination of surgical excision and x-radiation destruction of the primary tumor and its regional lymph node spread. Once disease becomes established beyond these confines, the patient is beyond cure by present means. Anatomical studies with

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dyes¹ have shown that, regardless of where the dye is injected, approximately three-quarters of the lymphatic drainage of the breast extends to the axilla and one-quarter to the internal mammary chain. Clinical studies,² however, demonstrate a higher incidence of metastasis to the internal mammary nodes when the primary tumor arises in the medial portion of the breast. On the basis of this clinical-anatomic concept³ several operative procedures of varying extent are ideally suited for individual clinical settings.

The average infiltrating breast cancer arising in the outer portion of the breast spreads most frequently and at an early stage to the axillary lymph nodes. In this situation the classical radical mastectomy represents the surgical treatment of choice—supplemented by adequate supervoltage x-ray therapy to the peripheral lymphatic chain when axillary nodes are involved. In performing the classical radical mastectomy we have found several steps to be helpful. If there is any question regarding invasion of skin overlying the tumor mass, adequate margins of skin should be removed together with the operative specimen. In developing skin flaps the superficial fascia represents an ideal landmark. Dissection should always be made outside of the superficial fascia. This fascia separates the breast parenchyma from the subcutaneous fat and should always be included in the operative specimen. When approaching the axilla the clavicular and sternal heads of the pectoral major muscle are separated through the normal cleft which is easily found beneath the head of the clavicle medially. The sternal portion is excised from its tendinous attachment to the humerus. Dissection is then carried through the upper margin of the clavi-pectoral sheath, which is reflected downward exposing the axilla and facilitating a true mono bloc excision of the axillary content. We have found that in the lower portion of the operative field it is unnecessary to excise the rectus sheath below the costal margin. We usually clear the sheath from below and excise it from the level of the sixth intercostal interspace upward. This avoids diastasis recti and has not led to any increase in local recurrence.

Although we prefer to treat early localized lesions, we are not justified in being excessively selective in excluding patients with locally advanced lesions from a curative attack, provided that no evidence of systemic spread of disease is found on careful survey of the patient. Between

1945 and 1948 the great majority of patients at Memorial Hospital, New York, who had infiltrating breast cancer were treated by radical mastectomy; and although 62.5 percent had axillary node involvement, 57 percent survived and 50 percent were free of disease at five years. During the same interval, there was axillary node involvement in only 40 percent of early cases diagnosed by local excision of equivocal clinical lesions, and 74 percent were alive and 70 percent clinically free of disease at five years.

When a breast cancer is detected fortuitously at its earliest incipient stage—microscopic non-infiltrating or in situ lobular carcinoma—the main surgical effort should be directed toward complete removal of the entire breast parenchyma, since almost all breast cancers are multicentric in origin.⁴ Patients with cancer at that early stage can be treated best by complete simple mastectomy together with axillary dissection with preservation of the pectoral muscles. The main advantage of this approach is the better cosmetic appearance resulting from preservation of the pectoral fold. We have performed more than 170 such procedures on suitable patients. All patients in this group were free of disease at the time of last report. (Three had died of other causes.)

We have applied the extended radical mastectomy⁵ including excision of the internal mammary lymph nodes to patients with infiltrating cancers presenting in the medial and central portions of the breast, since the likelihood of metastasis to the internal mammary nodes increases as the location of the primary tumor approaches the sternal margin of the breast. More than 700 extended radical mastectomies have been done at the Memorial Hospital, concentrating on this selection. The incidence of internal mammary node metastasis has been high (33 percent) although only 50 percent of patients had axillary node involvement. Both axillary and internal mammary involvement were present in 25 percent of all patients in this group. At five years 72 percent were alive and 65 percent of all patients were clinically free of disease. At ten years 54 percent were alive and 51 percent were clinically free of disease. The most striking finding was that patients with only internal mammary node metastasis did as well as those with only axillary node metastasis when treated by the extended radical mastectomy.

In both groups, approximately 60 percent were free of disease at five years and 67 percent were

alive. At ten years the survival rate for both groups was 50 percent. Patients with internal mammary node metastasis can be salvaged by appropriate primary surgical therapy. Although the extended radical mastectomy is an excellent procedure when properly executed, it is more difficult technically than the classical radical mastectomy. Even in ideal circumstances morbidity is increased during the first two or three postoperative days. However, patients are discharged routinely eight or nine days following operation. Postoperative mortality within 30 days of operation is less than half of 1 percent. The classical operation supplemented by Cobalt 60 therapy to the internal mammary nodal area⁶ affords an alternate method of treatment for patients with a high risk of internal mammary node metastasis in the average hospital in average circumstances. These patients receive a total dose of 4,500 to 5,000 rads tumor dose of CO 60, Cs 137 or electron beam therapy given over a five-week period through an anterior port covering the internal mammary chain and the base of the neck—the port extending from midsternum to the costochondral junctions and from the sixth rib below to about 2 cm above the clavicle above.

Optimum treatment of primary breast cancer can be attained through the rational application of all three operative procedures to appropriate clinical settings. Approximately two-thirds of our own patients with infiltrating cancers undergo radical mastectomy and the remaining third are treated by the extended procedure. All of the non-infiltrating cancers and a small number of very tiny infiltrating lesions arising in the tail of the breast have been treated adequately by the modified approach. Considering only infiltrating cancers, 93 percent of all patients seen by us with untreated breast cancer between 1957 and 1960 were considered operable. Approximately 50 percent of this group had positive axillary nodes. Seventy-five percent were living five years after operation, with local recurrence in only 2.5 percent. Of the group with inoperable disease, some of whom underwent palliative mastectomy for huge fungating tumors, none survived at five years and local recurrence was high. In the overall group of patients with infiltrating cancers, including the inoperable, 70 percent were living at five years. All patients treated for non-infiltrating or in situ cancer are free of disease.

In the treatment of infiltrating cancers with regional lymph node metastasis, we apply ag-

gressive supervoltage therapy to the peripheral nodal areas when metastatic nodes are found close to the margin of surgical excision, usually administering 4,500 rads (in air) over a five-week period. When huge tumors are present in the breast, particularly when invasion of the underlying pectoral fascia is found, aggressive therapy is also applied to the underlying chest wall because of the increased risk of spread through the intercostal lymphatics.

Early detection of breast cancer has contributed to the general, gradual improvement in survival of patients treated by conventional therapy. Mammography has been moderately helpful in this respect. Between 1961 and 1967, 3,000 of our patients had x-ray mammography as part of their work-up. In this group we were influenced by suspicious roentgenographic findings alone to operate upon 28 patients. In these 28 patients 14 cancers were found, nine in situ and five infiltrating. During the same period we operated upon 28 other patients whose mammograms were completely negative and found 21 infiltrating and seven in situ cancers. In the great majority of patients mammography did not affect our decision concerning primary therapy of the patient. Although mammography has been helpful in detecting some early breast cancers before they were apparent clinically, it is not a reliable diagnostic method. A negative mammogram should be disregarded in the presence of suspicious clinical findings.

We have become increasingly aware of the bilaterality of breast cancer. Some time ago in evaluating our ten-year survival rate in patients undergoing extended radical mastectomy, we were surprised to note that in 9 percent of patients treated by this method a primary cancer had developed in the opposite breast within ten years of the initial operation. Since then we have carried out biopsy of the opposite breast with increasing frequency at the time of mastectomy; and now at the time of mastectomy for a proved breast cancer we routinely perform biopsy of generous specimens of the opposite breast.⁷ Most often minimal thickenings or areas considered suspicious by mammography are excised widely. Occasionally generous random biopsy specimens of the mirror image of the proved cancer as well as the upper outer quadrant of the opposite breast are examined in an effort to detect occult lesions. Bilateral breast cancer has been demonstrated in 16 percent of our own patients—6 percent asynchronous and 10 per-

cent simultaneous. Simultaneous biopsy of the opposite breast has detected cancer at a much earlier stage than was noted in patients who had had radical mastectomy of one breast and then were operated upon after minimal signs appeared in the remaining breast. In the simultaneous group only one patient out of 15 with infiltrating breast cancer in the opposite breast had positive axillary nodes and 60 percent of cancers in the opposite breast were at the non-infiltrating stage. By contrast, in the group which had undergone previous mastectomy, 23 percent of those with infiltrating cancers had positive axillary nodes and only 28 percent of the lesions found in the second breast were at the in situ stage. When carcinoma is found in both breasts simultaneous bilateral mastectomy is carried out, the extent of each mastectomy depending upon the clinical pathological setting in each breast. The salvage rate of these patients is comparable to that of patients with unilateral breast cancer.

Some locally recurrent breast cancers are still curable by⁸ aggressive x-ray therapy or radical surgical excision. Parasternal chest wall recurrence arising from metastatic internal mammary nodes, or solitary recurrence in the skin flaps or in the axilla often represents direct extension of carcino-

ma from the primary tumor and can occur without the presence of concomitant systemic spread. Approximately 18 percent of patients with a parasternal recurrence treated by full thickness resection of the chest wall with primary closure have remained free of disease for long terms, some for as long as 17 years, following the secondary excision.

Current systemic therapy is at best palliative, uncertain and temporary in nature. Since the patient's only opportunity for permanent cure is through successful primary therapy, current refinements in early diagnosis and primary treatment must be utilized to the utmost if we are to improve our salvage of patients with breast cancer.

REFERENCES

1. Turner-Warwick RT: Lymphatics of the breast. *Brit J Surg* 46: 574, 1959
2. Handley RS, Thackray AC: Invasion of internal mammary lymph nodes in carcinoma of breast. *Brit Med J* 1:61-63, 1954
3. Urban JA: Evaluation of newer techniques of treatment for breast cancer. *Clin Obstet Gynec* 9:235-251, 1966
4. Gallager HS, Martin JE: Early phases in the development of breast cancer. *Cancer* 24:1170-1178, 1969
5. Urban JA: Radical mastectomy with incontinuity en bloc resection of the internal mammary lymph node chain. *Cancer* 5:992-1008, 1952
6. Fletcher GH, Montague ED, White EC: Evaluation of irradiation of the peripheral lymphatics in conjunction with radical mastectomy for cancer of the breast. *Cancer* 21:791-797, 1968
7. Urban JA: Bilateral breast cancer. *Cancer*, 24:1310-1313, 1969
8. Urban JA: Radical excision of chest wall for mammary cancer. *Cancer* 4:1263-1285, 1951

ARRHYTHMIA DURING CRITICAL ILLNESS

"I believe unrecognized coronary disease is a major cause of the disastrous arrhythmias occurring during a critical illness. Among the American population there is a certain subpopulation at risk of sudden death. These are people who develop coronary atherosclerosis rather silently, who don't have much in the way of symptoms, who have an irritable myocardium, and who are prone to die suddenly. I believe that a certain number of these people at risk die during critical illness. They develop bacterial pneumonia or any serious disease and then die suddenly because of pre-existing coronary disease. It's possible that the illness they develop is an inter-current event and they would have died a few months later quite suddenly.

"So if a patient with a critical illness mysteriously develops an arrhythmia, the thing to do is to consider that he also has coronary disease and to give him the sort of care we think is part of coronary care for acute myocardial infarction."

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